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Quarterly Report

February 1 - April 30, 1970

"Useful Technology at your Fingertips"

wesrac

WESTERN RESEARCH APPLICATION CENTER

GRADUATE SCHOOL OF BUSINESS ADMINISTRATION / UNIVERSITY OF SOUTHERN CALIFORNIA
LOS ANGELES, CALIFORNIA 90007
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WESRAC

Western Research Application Center

FIRST QUARTERLY REPORT

Period Ending April 30, 1970

Contract No. NASW - 1869

(February 1, 1970 - January 31, 1971)

WESTERN RESEARCH APPLICATION CENTER

Graduate School of Business Administration
University of Southern California
Los Angeles, California 90007

wesrac
WESTERN RESEARCH APPLICATION CENTER
computerized access to world technology

May 15, 1970

Chief, Dissemination and Program Evaluation Branch (Code UT)
Technology Utilization Division
Office of Technology Utilization
National Aeronautics and Space Administration
Washington, D.C. 20546

Dear Sir:

The attached quarterly report reviews the operation of WESRAC for the period February 1, 1970 through April 30, 1970, performed in conjunction with contract # NASW - 1869.

Distribution, as shown below, is being made in accordance with contract requirements.

We will be glad to provide additional facts or explanations on activities during the period covered by this report if they are desired.

Very truly yours,

A. Kendell Oulie
Director

AKO:kjd

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TABLE OF CONTENTS

Section		Page
	Summary	1
I	Introduction	3
II	Physical Plant, Equipment and Personnel	4
III	Administration	6
	A. Departmental Status	6
	B. Employee Selection and Training	6
	C. Client Education	7
	D. Seminar-Workshop	7
IV	Marketing	8
	A. The WESRAC Product	8
	B. Merchandising, Promotion and "Sales"	8
	C. Publicity	12
V	Engineering and Scientific Applications	16
	A. Operations	16
	B. New Service	17
VI	Information Systems	18
	A. Document and Report Production	18
	B. Computer Operations	18
Appendix A	Samples of Publicity	20
	A1 WESRAC article in Wall Street Journal	21
	A2 WESRAC article in Design News	22
	A3 WESRAC Newsletter, Volume I	23
Appendix B	Sample of Promotional Material	24
	B1 WESRAC Computer Printed Letter	25

Section		Page
Appendix C	Statistics Requested by NASA-TUD	26
	C1 Issued Abstracts Relative to Microfiche or Hard Copy Documents	27
	C2 Hard Copy Issued by STAR and IAA Category	28
	C3 Microfiche Issued by STAR and IAA Category	29
	C4 RDC Marketing/Service Contact (clients)	30
	C5 RDC Marketing Approaches (non-clients)	31
	C6 RDC Large and Small Business Clients	32
	C7 RDC Annual Member Clients by SIC Code	33
Appendix D	Abstract of the Report	34

SUMMARY

A. Administrative Department

An Administrative Department was added, on a trial basis, to the organizational structure of WESRAC in February so that the talents of a new staff member could be used most efficiently. The purpose was to consolidate under one head a number of responsibilities which in the past had been handled by various people. These functions include general administration, personnel management (e.g. hiring, training), supplies, indoctrination of new clients on how to use technology collections, and workship/seminar development. They also include coordination of those WESRAC operational, promotional, and service activities which require the cooperative efforts of two or more departments.

B. Marketing Department

WESRAC marketing representatives made a total of 145 personal visits and 340 telephone contacts with clients and prospective clients during this quarter. Emphasis continues to be placed on the acquisition of leads to new clients and the education of current clients in the values that can result from greater utilization of the NASA collection of technology. Greater use was made of direct mail campaigns to generate leads with nearly three times as many pieces being mailed in this one quarter as were mailed during all four quarters in the last contract year.

C. Publicity

WESRAC achieved national magazine and newspaper publicity and local coverage on radio and television in Southern California. Exhibits were developed and manned by WESRAC personnel at the Systems Management 1970 National Technical Meeting at the Disneyland Hotel and at the Annual Convention of the American Association for Contamination Controls at the Anaheim Convention Center.

A major achievement was the full column front page article in the Wall Street Journal. This was generated by WESRAC and was printed nationally. It described in detail and illustrated results from using the NASA Technology Utilization Program through Regional Dissemination Centers. It appeared to have favorable national and international repercussions for all segments of the Technology Utilization Program. The many positive responses suggest that greater marketing benefits can result from properly prepared national publicity than is possible through local publicity.

D. Engineering and Scientific Applications Department

The Engineering and Scientific Applications Department processed 78 retrospective searches during the quarter and 44 in the month of April. Planning has begun to convene a seminar/workshop during June on the subject of Fluid Logic Controls to be held on the campus. The Department has continued to emphasize personal contact with client users and to assist the Marketing Department in planning approaches to prospective clients that will increase the probability of signing these prospects to annual commitments.

E. Information Systems Department

A direct mail address tape for the printing of mailing labels was developed and completed during the first quarter. Search report production reached a record high in April. Utilization of the newly installed TWX has reduced both the cost of obtaining client ordered documents and the delivery time of the documents that must be ordered from non-local library sources.

F. Statistics

Selected statistical information requested by NASA-TUD is contained in Appendix C.

I

INTRODUCTION

This report covers activities of the Western Research Application Center for the first quarter period 1 February - 30 April, 1970. WESRAC is a Regional Dissemination Center for the NASA technology collection and other approved sources. The report is prepared in accordance with requirements of Article XV, Paragraph A5, National Aeronautics and Space Administration Contract No. NASW-1869 for the year beginning February 1, 1970.

WESRAC is organized at the University of Southern California, Los Angeles, as part of the Graduate School of Business Administration under the administration and financial control of the USC Research Institute for Business and Economics (USCRIBE)

II

PHYSICAL PLANT, EQUIPMENT AND PERSONNEL

A. Physical Plant

The Center continues to operate in two remodeled former residences and to use the IBM 360-30 computer located in the University Business School. These arrangements are adequate for current operations and for those predictable in the immediate future.

B. Equipment

A teletype transmitter/receiver was installed during the quarter to facilitate communication by WESRAC with clients and other RDCs. It is especially useful in ordering documents expeditiously and accurately where distant libraries must be used and in maintaining network operations with NASA Technology Dissemination Centers.

C. Personnel

During this period WESRAC continued its efforts to upgrade its staff. Where practical, part-time employees have been replaced by full-time personnel in order to have greater continuity in operations.

Three Service Representative (sales), each of whom has had broad sales and marketing experience, were added to the staff during this quarter. One additional full-time scientific specialist, holding the degree of Ph.D. in Chemistry, was employed by the Engineering and Scientific Applications Department.

The following indicates WESRAC personnel by department at the end of the first quarter:

PERSONNEL

30 April 1970

Department	Full-time	Part-time
Director's Office	2	1
Administration	1	2
Marketing	4	1
Engineering and Scientific Applications	3	4
Information Systems	5	3
	15	11

III

ADMINISTRATION

A. Departmental Status

The organizational structure of WESRAC was modified early in the quarter with the establishment of a separate department for Administration. Its purpose is to assume the operational and administrative responsibilities that do not fit logically into the Marketing, Engineering or Information Systems Departments, and to coordinate those tasks which require cooperative efforts of more than one department. Two special responsibilities are included: training of new employees and client education on the use of large technology collections such as that of WESRAC.

B. Employee Selection and Training

With the turn-over of both part and full-time people a major problem, proper training and indoctrination is an important need. This is coupled with the selection of personnel, whose experience and education suit them for employment at WESRAC. Regardless of the department in which he works, a new employee's efficiency and contribution to WESRAC is improved by a formal exposure to all Center activities and to the principals of technology utilization. These training efforts are programmed by the Administration Department.

C. Client Education

Another area of concern, mentioned in previous reports, is the apparent lack of a complete understanding by many clients of the benefits inherent in continuous use of large computerized collections such as the NASA collection and the other data sources available at WESRAC. It is believed to be essential that WESRAC itself stimulate greater client utilization by presenting thorough briefings of the when, why and how to take advantage of the services. To support this, a slide briefing is being finalized that will be presented to the engineer/scientist users within client organizations. This program is intended to make it easier for clients to use WESRAC as well as their own internal systems of information control. It is felt that actual usage if the only long-term guarantee of a successful technology utilization program - far superior to commitments.

D. Seminar-Workshop

In conjunction with the Engineering and Scientific Applications Department and in cooperation with the Small Business Administration, plans are being formalized to produce a seminar/workshop on Fluid Logic Controls. It will be held in June on the U.S.C. campus for two days. The first day will be devoted to state of the art developments, and the second day to demonstrations of fluidic hardware.

IV

MARKETING

A. The WESRAC Product

Current Awareness and Retrospective Searches continue to be the basic literature search services offered by WESRAC. Although computer searching, based on carefully prepared custom strategies, constitutes the great bulk of service in both areas, manual searching is still offered to a client where this, because of the nature of the problem, is a better means for uncovering relevant data.

Access to the Educational Resources Information Center bank of the Department of Health, Education and Welfare has been added to WESRAC's sources.

Efforts are continuing to develop expanded subject area coverage in the non-customized current awareness abstract reports, or Standard Interest Profile (SIP). It is expected that the new SIP program, which is being expanded to include approximately three times as many subjects, will be offered during the next quarter.

B. Merchandising, Promotion & "Sales"

1. Direct Contact with Prospects

Personal face to face contact between WESRAC Service Representatives and prospective clients is still considered to be the

most fruitful method for generating greater usage of the WESRAC technology collection. During this quarter one service representative devoted full time to calls on prospects. 145 personal visits with clients and prospective clients and 340 telephone contacts to arrange appointments and to respond to inquiries were completed. As a result of inquiries from areas outside of Southern California more than ninety letters responding to specific inquiries were mailed to potential users who were beyond convenient personal or phone contact.

2. Annual Client Retainer Requirements

A change in the financial commitment required of clients has been under consideration for some time. The general decline in government expenditures has had a substantial impact on California business, and the resultant "tight money" situation has caused many companies to review more carefully cash requirements for supporting services in this area. This indicated that a reduction in the minimum annual retainer might be helpful in securing new clients and in renewing old ones. It was concluded that this reduction coupled with more effort to encourage actual use of individual services, would result in greater, rather than less dollar income. Consequently, on May 1, 1970, the minimum annual client retainer will be reduced to $500.00. Companies which can anticipate greater annual use will receive services at lower unit

costs by depositing retainers of $1,500.00 or $5,000.00. This reduction amounts to 10% and 20%.

Individual services are provided to any requester at 20% over client charges.

3. Direct Mail Solicitation

Three direct mail campaigns were conducted during the quarter. While direct response was highly desirable, our main objective was to achieve favorable exposure. A computer printed letter, offering any WESRAC service at client charges for a thirty-day period,was mailed in February to 7,824 leading businessmen in California.

In April, a reproduction of the front page of the Wall Street Journal containing the NASA technology story, which was printed in March, was mailed to 9,000 clients and prospects. (This publicity is discussed later).

The first issue of the WESRAC Newsletter was completed this quarter and was given broad distribution.

4. "Sales"

As mentioned previously, the current staff of three Service Representatives joined WESRAC during the quarter, one in February

and two in April. Each of the three appears to be well qualified to represent WESRAC. Their efforts, combined with the positive leads obtained through the national publicity in the Wall Street Journal and Design News, justify encouraging forecasts for added client users.

Thirty-four of the requests for retrospective searches this quarter came from companies who had not used WESRAC services previously. While in the past we have usually required WESRAC users to become annual clients before accepting search requests, it was decided during this quarter to do single searches for non-clients. A number of the thirty-four new companies were single search requesters. While most of them had made initial contact after the first week in April, four had become clients by the end of the quarter (April 30). The follow-up with the remaining thirty indicates a good prospect of signing as many as ten of these to annual contracts.

5. Aviation Safety Current Awareness Service

Future plans include an idea to combine WESRAC data and search services with the University of Southern California's unique Institute of Aerospace Safety and Management to generate customized Current Awareness reports for the aviation safety industry. There appears to be the possibility of making a nationally significant technology

contribution by providing governmental and commercial safety activities with monthly screened searching of much of the world's air safety information. Discussion of the methods for accomplishing this program have begun.

C. Publicity

1. Journal and Magazine Articles

a. Wall Street Journal. An extremely important piece of publicity was achieved during this quarter in the form of a full column on the front page of a national publication, the Wall Street Journal, on March 27. Work on this article with the Wall Street Journal writer in San Francisco had begun a number of months before and it entailed considerable research on the part of the writer as well as close support by WESRAC personnel and clients. When it was finally published, it described the NASA Technology Utilization Program in a way that readers appeared to understand clearly. It included illustrations of results achieved and testimonials from users. It also described services available from Regional Dissemination Centers, costs, and identified all RDC locations in the United States.

Inquiries which immediately began to come to all Centers from all over the world more than justified our expectations. A very high percentage were sufficiently well informed from the article to become immediate users. Over 100 inquiries had been received at WESRAC alone within a month. Other Centers were being similarly blessed. It is our opinion that this single piece of publicity produced more positive results for WESRAC and the NASA TU program than all other publicity together in the previous 3 years. (A copy of the page containing the article appears in Appendix A1).

b. Design News. A Page one editorial description of the NASA Technology Utilization program appeared on March 2, 1970, in the Design News magazine. Although the number of responses that can be traced directly to this editorial, eleven, is far less than the contacts developed by the Wall Street Journal, they have been encouraging nonetheless. A much greater number of the calls and letters received from persons reading this article (as well as the previously mentioned Wall Street Journal article) indicated definite interest in service, rather than just curiosity. (The Design News editorial appears in Appendix A2).

2. Television and Radio Publicity

Free television and radio spots were again provided by local stations in Los Angeles. This type of coverage, since it must be very brief and is seen and heard by a quite different audience at odd times, does not generate the same positive response that can be obtained by national NASA publicity carried in pertinent business and professional organs. However, 12 inquiries were identified and it adds to our over all objective of educating potential users to the use of large technology collections such as WESRAC's.

3. Convention Exhibits

a. WESRAC manned an exhibit, and the manager of the Engineering and Scientific Applications Department addressed a session, at the SM '70 (Systems Management) Technical Meeting held at the Disneyland Hotel from March 31 through April 2, 1970. The attendance at the meeting was, however, very disappointing, with less than 100 of a planned 1,000 to 1,500 actually registering. This was in spite of very high level speakers on the program.

b. A booth was manned at the Anaheim Convention Center from April 20 through April 22, 1970, during the National

Technical Meeting of the American Association for Contamination Control. Approximately 850 attended the three days of sessions and demonstrations and were exposed to the WESRAC exhibit.

4. Group Presentations

WESRAC representatives appeared before six (6) civic and professional groups during the quarter to make presentations of the NASA Technology Dissemination program. The groups addressed and numbers attending are listed below:

Date	Group	No. Attending
Feb. 3	Inglewood Rotary Club	70
Feb. 26	North Hollywood Optimists.....	30
Mar. 14	AIAA at Jet Propulsion Laboratories	300
Apr. 8	Society of Technical Writers & Publishers.... (L.A.County)	35
Apr. 22	Town Hall, Systems and Technology Section....	25
Apr. 30	Special Librarians Association (Orange County)	25

V

ENGINEERING AND SCIENTIFIC APPLICATIONS

A. Operations

A total of 78 retrospective searches were requested and processed from February 1 through April 30. The 44 requests during the month of April exceeded by four the previous high reached during December, 1969. This increase can be attributed in large part to the national publicity given the program by the Wall Street Journal and Design News, and to those taking advantage of the single service offer at regular client rates contained in the February computer printed letter.

Despite the substantial increase in search requests during the month of April, the average turn around time (period from receipt of search request to mailing of completed WESRAC report) remained at about 7 calendar days. Minimum and maximum times continued to be one and fourteen days respectively. Overall efforts by both Marketing and Engineering to encourage utilization by clients of the customized Current Awareness Searches has resulted in moderate success. Fourteen CASs were being provided to clients at the end of the quarter.

B. New Service

Searches of the file of the Educational Resources Information Center of the Department of Health, Education and Welfare were offered to clients during the quarter. This file is available through cooperation with the Science and Technology Research Center the RDC in North Carolina, and contains data of interest in the fields of education, psychology, sociology and home economics.

The department has instituted a search follow-up procedure to improve understanding between WESRAC and its customers. This formalized procedure consists essentially of a tickler system that ensures routine contacts with the recipient of search reports by the assigned specialist who obtains evaluations of our service from the client. Although it has not been in operation long enough to document concrete results, it is believed that this system can lead to greater technology usage through the continuous interest shown by WESRAC in the client's search problems.

VI

INFORMATION SYSTEMS

A. Document and Report Production

Computer searches totaled 78 during the quarter with a record high in April of 44. Document production figures do not yet reflect the large number of April searches but an increase in this area can be expected in the next quarter.

Installation of the TWX has enabled this department to reduce the costs of communicating with document sources throughout the country and has also reduced delivery time of documents ordered by clients.

Filing and cataloguing of U.S. Government Research and Development Reports (USGRDR) abstract cards have been completed. This file is used to compile abstract reports for searches of the Department of Defense data bank.

B. Computer Operations

WESRAC is continuing to use the IBM 360 Model 30 system which is located in the Graduate School of Business Administration. Efforts to reprogram and redesign the Mod II Search System for the NASA tapes (1401 autocoder) into the 360 assembly language are continuing.

Information Systems developed and completed the necessary programming to handle a direct mail address tape for use in WESRAC's mail campaigns. The tape currently contains nearly 10,000 entries for business leaders, consultants, and librarians in California. The names and addresses have been printed in Cheshire Machine label format to facilitate the rapid and economical transfer of addresses to the mailing pieces.

APPENDIX A

1. WESRAC article published in Wall Street Journal, March 27, 1970.

2. WESRAC article published in Design News, March 2, 1970.

3. WESRAC Newsletter, Vol. I.

THE WALL STREET JOURNAL.

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Space Fallout

Data Banks Containing NASA Research Fruits Help Many Companies

Results of $35 Billion Effort Available at a Low Cost; Lockheed, Litton Use Files

Building a Better Oscilloscope

By A. Richard Immel
Staff Reporter of The Wall Street Journal

William Ferwalt runs a seven-man company that makes oscilloscopes on the Nez Perce Indian Reservation in Idaho. He wants to know everything he can about oscilloscopes, so last fall he paid $190 for a computer search of the National Aeronautics and Space Administration's technical data bank.

For his money, he got the fruits of five years of oscilloscope research done by Bendix Corp. under Government contract. The data included hitherto overlooked techniques for building a special type of instrument.

Mr. Ferwalt expects to parlay his $190 into $100,000 in sales, thereby doubling his company's business over the next several years.

Ferwalt Inc. is one of an increasing number of businesses taking advantage of the $35 billion spent on research for the nation's space program. The companies get their information at any of six data dissemination centers designed to open NASA's extensive technical data resources to private industry.

600,000 Documents

The first center was established seven years ago at Indiana University. Since then, centers have opened at the universities of Connecticut, New Mexico, Pittsburgh and Southern California and at North Carolina Science and Technology Research Center. The centers are financed by NASA and the money coming in from clients.

By NASA estimate, the data centers bulge with nearly 600,000 research documents; 6,000 documents are being added every month. Much of the data is generated by a clause in NASA contracts that requires companies to report to NASA any inventions and technology developed in the course of their Government work. But the data bank taps other sources, too, including the Department of Defense research files and professional journals and technical papers from around the world, including Communist countries.

Although the benefits are most striking for small companies with little research capability of their own, such large firms as Litton Industries and Alcan Aluminum are paying $1,000 to $5,000 a year to use the data banks. Even giant Lockheed Aircraft, a major aerospace contractor, is finding it can get some technical information faster through a dissemination center's computers than from its own voluminous research library. For several years, Lockheed has been going to the center at the University of Southern California to keep up with new techniques in metal welding and nondestructive testing.

A Major Misconception

In all, some 400 companies used the centers last year. That's up considerably from a few years earlier, but it is still far too small a number, NASA officials say. The nonprofit centers could easily handle work for thousands of clients, the officials say.

NASA officials caution that the data banks aren't the answer to every struggling businessman's dreams. "A big misconception we have to fight is that we're a grab bag of treasures," says an official. "We can only tell if an idea is feasible, if it can be done within the realm of costs. The idea has to be in the client's head before he comes to us."

A. Kendell Oulie, director of the center at Southern California, agrees. "What we're selling here is access—the use of computer and search capabilities," he says.

The centers employ a small full-time staff of engineers and clerical help and hires engineers and scientists on a part-time basis to sit down with clients and develop a computer search strategy. It is this personal attention that is at the heart of the centers' effectiveness, clients say.

Personal Contact

"We have access to the same NASA tapes through Washington," says Horace Jacobs, a Lockheed official. But, he says, the data centers' advantage is that they assign a person or two to discuss and work with a scientist. "There's more personal contact."

Although it is possible to get a one-shot computer search similar to the one the oscilloscope maker got, the centers encourage clients to sign up for a full year's services, drawing against the retainer of $1,000 to $5,000.

The most popular service for clients is a retrospective computer search of the entire data bank, tailored to answer a client's specific question. For $190 the computer will spew out condensations of technical reports describing all the work that has ever been recorded in the data bank on that particular subject. Then, for another $300, the client can get a "current awareness" search each month, which keeps him up to date on new material being added to the bank.

For $80, a company with less specific needs can order a "standard interest profile," a list of condensations printed up periodically by the centers on a wide range of topics of fairly general interest.

Clients say the service is often fruitful. Dart Industries, a manufacturer of housewares, plastics and drugs, says it is developing high-temperature coatings for its consumer cookware as a result of a retrospective computer search.

Company officials say they also consult the computer before making decisions about new ventures. "When we're probing new business areas for Dart we need a quick reading to find out if a particular technology" has consumer applications, says Joseph Ciarimboli, Dart's manager of technical planning. "So we go and get a quick computer readout."

The Dart executive admits, however, that he was skeptical at first. "It took us about a year to be convinced," he says, adding, "People in the field tend to think they're up on everything."

What's News—

* * *

Business and Finance

GROSS NATIONAL PRODUCT, expressed in "real" figures, is expected to decline again this quarter, the Commerce Department said. Such a dr... would be firm support for those who... the economy may be moving into ... recession. Separately, the department reported its index of "leading" ... economic indicators rose less than ...% in February.
(Story on Page 3)

* * *

Prime-rate cuts by major banks became industry-wide as the remaining holdouts came into line. But several banks, in announcing the reduction to 8... from 8½% in the basic lending fee, ... learned that other loan charges usually tied to the prime rate would decline only slowly. The Federal Reserve Bank of New York reported that business loans at leading New York banks declined $224 million in the week.
(Story on Page 2)

* * *

Public ownership of Big Board member firms moved closer toward reality as the exchange's governing board approved rules changes previously cleared by the SEC. With the way thus cleared, Donaldson-Lufkin said it would go ahead with its public offering of 800,000 common shares.
(Story on Page 3)

* * *

Tougher media-ownership rules were adopted by the FCC. The regulations generally prohibit anyone from acquiring more than one full-time broadcast station in a single community. The new rules would give existing multimedia owners five years to reduce their holdings to an AM-FM combination, a TV station or a newspaper in the same market.
(Story on Page 2)

* * *

Major producer-distributors should have a brighter year in 1970 following a dismal performance in 1969. Last year, five of the seven major producer-distributors sustained losses unofficially estimated at a total of more than $100 million. But the companies have been slashing costs, and box-office receipts are expected to rise 3%.
(Story on Back Page)

* * *

U.S. auto makers plan a 6% drop in April ... assemblies from April 1969. The 6... 000 total would be 8% below some previous forecasts.
(Story on Page 10)

* * *

Ethyl Corp., White Motor said they are discussing the "possible advantages" of combining the two companies. ... didn't elaborate.
(Story on Page 7)

* * *

Texaco, Phillips Petroleum raised gasoline prices nationwide. Their moves followed similar action earlier this week by Mobil Oil.
(Story on Page 4)

* * *

Weis, Voisin, Cannon was suspended from NASD membership for five days. The securities dealers group found that the firm violated certain rules in connection with stock and debenture offerings.
(Story on Page 7)

* * *

National Student Marketing and its former president, Cortes W. Randell, have previously been investigated by Federal authorities, it was learned. The marketing company, currently under investigation by the SEC, weathered a probe by the Post Office Department earlier this year. And in 1964, the Post Office investigated another Randell enterprise, the National Scholastic Honor Society. NSM's stock has plunged since December, and the SEC is trying to determine if any of the company's earlier public statements were intentionally misleading.
(Story on Page 10)

* * *

Plant scheduled closings at five plants for two weeks, from April 13 to April 24. The facilities affected produce television sets, radios and phonographs; the industry's color-TV sales are off substantially from last year. About 9,500 persons will be idled.
(Story on Page 5)

* * *

Cleveland Trust Co. should be required to dispose of its stock interests in competing machine-tool producers, the Justice Department contended in a novel antitrust suit. The agency also wants the bank to eliminate its interlocking directorships in the companies.
(Story on Page 11)

* * *

Company Notes—

Dart Industries — Said net income dropped in the fourth quarter and in all 1969, despite higher revenue. The company cited increased costs as a factor.

* * *

Markets—

Stocks — Volume 11,350,000 shares. Dow Jones industrials 791.05, up 0.92; transportation ...28, off 0.46; utilities 117.94, off 0.22.

Bonds—Dow Jones 40 bonds 69.60, up 0.11.

Commodities — Dow Jones futures index 134.0... *off 0.16; spot index 141.78, off 0.06.*

TODAY'S INDEX

Ap... Meeting Briefs	15	Foreign Exchange	17
Bo... Markets	12	Foreign Securities	17
Co...modities	13	London Market	17
Di...end News	15	Money Rates	12
...ings Digest	12	Securities Markets	14-18
...orials	6	Tax-Exempts	12
...ancing Business	12	Who's News	13

World-Wide

CONFEREES SUSPENDED sessions on postal pay bills pending the talks' outcome.

The last of the striking Post Office employes returned to work yesterday morning after being promised that issues involved in their recent walkout would be dealt with "promptly." But negotiations between the postal unions and the Government showed little signs of such quick progress. A high Government official termed the next 48 hours "very critical." A House-Senate conference committee suspended further efforts to reconcile two differing pay bills until the union-Government talks produce recommendations or break down.

The head of the letter carriers' union has said repeatedly he will call a nationwide walkout if the talks haven't shown substantial progress by Monday.

* * *

AIR TRAFFIC was again plagued by an absence of controllers with no end in sight.

Last night F. Lee Bailey, head of the Professional Air Traffic Controllers Organization called for a nationwide walkout from "every Federal Aviation Administration facility." The issue, he said, is no longer fatigue but safety. He said the FAA is using supervisory personnel and working controllers on a six-day week since some members of the organization began calling in sick. Earlier yesterday, the FAA conceded that numerous delays in flights are occurring but said safety isn't being affected.

The FAA said absenteeism wasn't spreading despite "a few trouble spots" at New York, Cleveland, Minneapolis and Oakland.

* * *

The Big Four opened talks on the status of Berlin and agreed to meet again April 28. The U.S., British and French ambassadors to West Germany and the Soviet ambassador to East Germany met for three hours in West Berlin. A statement issued later said that "the first meetings are being devoted to a clarification of views." The West is believed to be pressing for greater freedom of movement between the two sectors of the divided city.

* * *

Relations between the Common Market and the U.S. will be a major item on the agenda when Chancellor Brandt meets with President Nixon in Washington next month, the West German leader said in an interview. Administration officials have expressed growing concern about rising trade protectionism in the European trade bloc. Brandt also will detail to Nixon the progress in separate talks by Bonn aimed at improving relations with Russia, Poland and East Germany.

* * *

Dominican kidnapers released a U.S. official in exchange for the government's freeing of a score of political prisoners. Lt. Col. Donald J. Crowley, 48, air attache at the U.S. embassy in Santo Domingo, was released unharmed on a downtown street in that city 58 hours after his capture. News of his safe return was telephoned to Santo Domingo's airport, and a chartered plane took off to fly the released prisoners to political asylum in Mexico City.

Argentine terrorists set a new deadline of early this morning for the government to accept their conditions for the release of a Paraguayan diplomat they kidnaped Tuesday in downtown Buenos Aires. They also threatened to carry out a campaign of executions against U.S. businessmen in Argentina if their demands aren't promptly met. The government had earlier rejected the terrorists' demands that it free two political prisoners as ransom for the diplomat's life.

* * *

Sen. Fulbright of Arkansas broke ranks with most of his Southern Democratic colleagues and announced he would vote to return to committee Nixon's nomination of Judge G. Harrold Carswell to the Supreme Court. Sen. Hatfield (R., Ore.) later said he would also support an effort to send the nomination back to the Judiciary Committee, and he urged Nixon to withdraw the appointment. But Sen. Aiken (R., Vt.) said he wouldn't vote for recommittal.

* * *

A spring snowstorm left more than a foot of snow on the ground in some parts of the Chicago area, snarling transportation, closing schools and causing heavy absenteeism at some businesses. Highways were blocked, and power failed, in some communities in northern Indiana and lower Michigan. Illinois Bell said more than 10,000 of the Chicago area's 2.3 million telephone lines were knocked out. Especially hard hit were retailers because yesterday was a key pre-Easter shopping day.

* * *

U.S. fighter-bombers attacked North Vietnamese positions in Cambodia, military spokesmen in Saigon reported. The air strikes were ordered after South Vietnamese troops took "heavy fire" from enemy forces inside Cambodia, about 60 miles northwest of Saigon. The U.S. Command reported that 110 Americans died in combat in South Vietnam last week, the third time in the past four weeks the U.S. death toll exceeded 100.

South Vietnam offered to return 343 sick and wounded prisoners to North Vietnam, but Hanoi called the offer a "farce." The proposal advanced at the 60th session of Vietnam peace talks, "carries no conditions whatsoever," the South Vietnamese said. But the offer was coupled with a statement that it was hoped Hanoi would make a reciprocal gesture. Saigon previously offered to return 62 North Vietnamese.

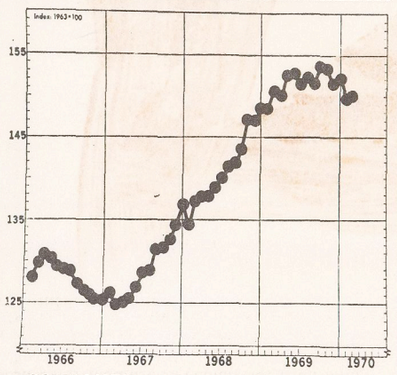
* * *

An experimental nuclear weapon with the force of about a million tons of TNT was exploded deep under a desert mesa in Nevada, sending shock waves hundreds of miles. The hydrogen device, believed to be related to development of a warhead for an antiballistic missile, was described as one of the largest ever fired in the U.S. The Atomic Energy Commission said the blast didn't cause damage and didn't leak radiation into the atmosphere.

* * *

A Massachusetts grand jury was authorized to convene in special session April 6 for its own investigation into the death last summer of Mary Jo Kopechne in Sen. Kennedy's car. The proceeding is separate from an inquest held behind closed doors in January.

Leading Indicators



COMPOSITE of key indicators of future economic activity rose in February to 149.8% of the 1963 average from an upward-revised 149.7% in January, the Commerce Department reports. (See story on page 3.)

Balking the Census: Group of Rebels Sees An Invasion of Privacy

Philadelphia Committee Wants Some Questions Optional; Census Bureau Isn't Worried

By Stephen J. Sansweet
Staff Reporter of The Wall Street Journal

PHILADELPHIA — When the mail arrives tomorrow morning, Donald Ernsberger will look for the envelope from the Bureau of the Census, rip it open, take out his 1970 census questionnaire—and tear the form into shreds.

Mr. Ernsberger, the 22-year-old head of the Committee for a Voluntary Census, faces possible penalties of 60 days in jail or a $100 fine for his act of civil disobedience. But he vows to go through with it, and he expects at least 100,000 other Americans to consign their census forms to the trash can.

A number of groups are getting their dander up over the census. Some even have filed suit, among them four St. Louis civic associations, a group from New York's Harlem, and a San Francisco contingent. These three suits—apparently filed in vain, since they hadn't been resolved yesterday—contend that the census inevitably will miss many low-income areas, thus depriving their residents of needed Federal funds and proper representation in Congress.

Mr. Ernsberger's group is displaying the most active organized resistance. It is opposed to the census on the more philosophical ground of invasion of privacy. The committee, formed late last year, has been building up momentum toward the target date of April 1. Information put on census forms is supposed to reflect the respondent's status as of that day. The committee wants the census procedure reformed.

The Throwaways

"Our goal is to have 100,000 people refuse to answer the census, to tear it up and throw it away and show the Government we mean business," says Mr. Ernsberger. However, despite his efforts and earlier threats of opposition by such groups as black militants, the nation's 19th decennial census most likely will be a peaceful affair.

"The main thing that disturbs us is the compulsory nature of the census," says Mr. Ernsberger, a graduate student in political science and economics at Temple University here. "It's an outright invasion of privacy, and it's a perfect issue to demonstrate that Government's growing too big and getting too involved in people's lives," says this tall, thin young man.

The Committee for a Voluntary Census is an outgrowth of the Society for Individual Liberty, with which it shares about a dozen college-age volunteers and a cramped office in downtown Philadelphia. SIL, which styles itself as a "libertarian" group, broke away from the conservative Young Americans for Freedom last fall.

"We're sort of right-wing anarchists," says Mr. Ernsberger. "We believe that government should be abolished and that laissez-faire capitalism can handle all functions necessary to live." The group also believes in ending all censorship and restrictions on use of marijuana. The mingling of left and right political philosophies is evident on the group's office walls, where Goldwater for President posters are next to antiwar banners.

A Peering Uncle Sam

The census committee's main tool is a yellow brochure titled "Big Brother is Snooping." More than 50,000 of them have been distributed. The cover pictures a big-nosed Uncle Sam peering through a large magnifying glass. The text notes that each person is required to

Washington Wire

A Special Weekly Report From The Wall Street Journal's Capital Bureau

ECONOMIC REBOUND by election-time seems certain now to Nixon men.

They're almost exultant, feeling the economy will then be expanding, with inflation under better control. This week's interest rate cuts by big banks, atop Federal Reserve credit-easing, swells the optimism. McCracken & Co. believe the economy responds almost automatically six months after credit policy loosens. Burns hints more easing lies ahead. The restrictive budget surplus is plainly fading away.

But even the optimists concede unemployment may be high next fall. The seers expect the rate to top 5% in some coming months. *Nixonites fear, too, the slowdown in inflation won't be enough to prevent vote losses to the Democrats.* A current concern: Meat price drops at wholesale fail to show up at the supermarket.

Officials foresee little further decline soon in short-term interest rates. They note Treasury bill rates have already come down considerably.

CARSWELL'S NOMINATION becomes a political liability for Nixon and GOP moderates.

Senators' defense of the court choice seems weaker now. Scott, Griffin squirm under needling by liberals. Some Republicans still on the fence may turn against the nominee if a few more colleagues speak out. One unannounced Carswell foe, Oregon Sen. Packwood, came out in the open yesterday. Fellow-Oregonian Hatfield spoke for other GOP moderates in urging withdrawal of the nomination.

Nixon faces a bitter decision on how long to keep fighting. If the Senate sends the nomination back to committee, the President could insist on another committee vote, but that would mean a painful choice for GOP moderates like Hawaii's Fong; his vote could be decisive. Nixon must determine if the chance of victory is worth further party damage.

Leaders of the bar are restive, feeling they've been used in passing on nominees' qualifications. Nixon will have to pick classier conservatives in the future.

CAMBODIA AND HANOI drift closer to conflict. But current threats are largely bluff.

North Vietnam and the Vietcong recalled their diplomats from Phnom Penh yesterday. They refuse to negotiate about withdrawing troops from Cambodian soil. Cambodia's new rulers cancel a trade pact with the Vietcong, halt arms shipments via Cambodian ports. But Sihanouk's successors drop promises to drive out the Red troops, stress peaceful persuasion instead.

Present betting: The Communist forces won't leave. U.S. generals believe Cambodian sanctuaries are vital to the enemy in southern South Vietnam. Cambodia's ill-led, ill-equipped army can't cope with Red firepower. But it *may cooperate more with U.S., South Vietnamese* forces near the border. No major war between Cambodia and North Vietnam is likely to result.

Moscow and Peking play a waiting game. Both give Sihanouk verbal support but avoid firm pledges till they see if the government proves durable.

SAILORS GO ASHORE—for good. Lengthy sea duty, largely related to Vietnam, dissuades many Navy men from reenlisting. Only 9% of enlisted men are staying in; the Navy wants 31%. Reenlistment of fliers, ship officers is lagging badly. Secretary Chaffee pushes for a "sea pay" bonus for all sailors afloat.

GOP CONSERVATIVES threaten to try to oust Illinois' Rep. Anderson as chairman of the House Republican Conference. They complain he has strayed from the Nixon line on racial issues. *A possible challenger next January: Ohio* Congressman Devine. Anderson stresses his own support of Administration economic, welfare policies.

DEMOCRATIC STARS of Kennedy-Johnson days join to help ease the party's pocketbook pain. A committee of 20 ex-Cabinet colleagues plans a $50-a-head reception April 14 for National Committee Chairman O'Brien. The ticket-buyers: Former high Executive-branch officials. Proceeds will go for a national drive to solicit contributions.

LAWMAKERS' KINFOLK may come to Congress. Republicans talk of getting Illinois' Sen. Percy's brother Howard to challenge Rep. *Symington in a St. Louis suburban district.* House Majority Whip Boggs' son Thomas seems sure to seek the Democratic nomination to run against Maryland Congressman Gude.

NIXONITES HUNT ways to offset their

Sharing the Wealth

Nixon Is Urged to Yield Some Ocean-Floor Oil To Help World's Poor

Aides Say Rights Some Miles Out Should Go to the UN; Oilmen Reacting Angrily

Asking Other Lands to Join In

By Jerry Landauer
Staff Reporter of The Wall Street Journal

WASHINGTON—In greatest secrecy, influential counselors are urging Richard Nixon to renounce American rights to billions of dollars worth of offshore oil far out under the Atlantic, the Pacific and the Gulf of Mexico—and to deed it to the United Nations for the benefit of needy people.

This is not a visionary scheme of idle dreamers. On the contrary, the advocates include ranking Defense Department civilians and at least a dozen admirals and generals, most likely all the way up to Army Gen. Earle G. Wheeler, Chairman of the Joint Chiefs of Staff.

The oil these men want the President to relinquish lies beyond a line averaging 25 to 35 miles offshore. Some of it can be recovered by existing drilling technology. Much, much more—perhaps as much as $10 billion worth—lies under deeper water and is not yet accessible.

Oilmen getting wind of the proposal are furious. Industry wants the Chief Executive to claim all the deep-sea oil exclusively for the U.S., and swiftly. Delay "risks our vital national interests and security," according to the National Petroleum Council, an official Government advisory group.

Telling the World

No decision has been made, but any Presidential offer to yield up these untold riches for global uplift would be made in dramatic fashion. Probably Mr. Nixon would address the world, inviting nations to a UN conference at which details would be negotiated. Other coastal countries would be expected to renounce their own mineral rights to proportionate blocks of ocean bottom and to join the U.S. in a treaty disowning territorial ambitions underwater. If too many refuse, there would be no deal; also, such a treaty would require Senate ...tification.

Seeming magnanimity by any great power is never entirely divorced from self-interest, of course. In making his bold offer, Mr. Nixon would, in turn, expect certain other nations to be satisfied with "territorial" seas of only modest extent. The goal: To preserve maximum freedom of the sea for our commerce and our Navy.

A territorial sea is a legal concept, a belt of water demarcated not by marks on a map but simply by a nation's appetite. The coastal country's claim of sovereignty over its neighboring sea extends to the air space above and the resources below.

A second legal concept—"continental shelf"—is involved in the Nixon deliberations. A 1958 international convention in Geneva granted coastal countries sovereign rights offshore for the sole purpose of hunting for and digging up minerals, most importantly oil. These exclusive rights reach seaward at least to where the water is 200 meters (about 650 feet) deep and at most to where the depth of water "admits of the exploitation of the natural resources"—so long as the mineral-digging or oil-drilling remains "adjacent" to the coast.

Dividing Into Camps

Essentially, the world divides into two major camps: Those nations (largely the maritime trading powers) seeking to inhibit the expansion of territorial seas, and those nations seeking "broad" continental shelves because entrepreneurs or commissars see profit or personal advancement in endeavors far offshore. Mr. Nixon must also keep in mind demands from a third category—landlocked nations, mostly young and often poor, claiming loudly that it isn't fair for coastal countries to hog all offshore wealth.

The U.S. is in both major camps, which explains why the Chief Executive hears inconsistent urgings. America is a naval-maritime power with interests requiring maximum mobility; these interests are served by averting expansion of the territorial seas. The U.S. is also by far the world's biggest oil consumer, and offshore drilling now accounts for more than 12% of all U.S. oil production; these interests are served by broadening the continental shelves.

So far no President has found it necessary to make a clear choice. Mostly the Government has ignored the doctrinal conflict. While U.S. diplomats try to discourage other nations from

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available in additional sales for small electronics firm. Interested parties must be willing to invest about $190. No serious offer refused. Box #$#

Socio-economic planning consultants available to gov- ernment and business clients for policy formulation, ...

This ad of course is fictitious. No reputable magazine would accept for publication a come-on that is as blatantly fraudulent. And yet, there *was* a small electronics firm, it *did* pay about $190 in fees, and it *does* look forward to some $100,000 in additional sales per year. What's more, *your* company doesn't have to be small, or in the electronics business, or limited in its sales goals to another 0.1 megadollar in a particular product line—it would still work. In a moment, we will fill you in on the how and why of it. But first, the documentation.

Ferwalt, Inc., is located on the Nez Percé Indian Reservation outside Lewiston, Idaho. The company wanted to introduce a line of temperature-compensated crystal oscillators. This is easier said than done. Large competitors with well-funded R&D facilities are established already in the field. President William Ferwalt looked at a minimum budget: one senior electronics engineer, one technician, 2 years. Then he had a better idea. The Small Business Administration put him in touch with WESRAC* in Los Angeles. For a $190 fee, the WESRAC computer file search produced 13 pertinent reports. As to the results, I quote Mr. Ferwalt:

"Prior to this search, we had no idea that (XYZ Corp.) was doing this government-sponsored research . . . We will have our new product in 6 months instead of 1-1/2 to 2 years. Since this product has anticipated future annual sales of $100,000, we could be ahead by as much as $200,000 in projected sales . . ."

The moral of the story is simple. As we all know, the Government places large R&D contracts with private firms. The results, paid by the taxpayers' money, are available to all. In the case of NASA technology, this is even explicitly prescribed in the 1958 Space Act. You would think there would be a paper logjam because private enterprises clamored for truckloads of data.

And there's the catch. As one WESRAC consultant put it picturesquely: "We had been trying to sell the iridium-plated wonder fastener that traveled to the Moon and back, and of course no one wanted it. *Now* we are selling the technology behind the fastener (including the alleys that turned out to be blind), and that does have large potential markets right here." Technology search costs are almost ridiculously low both for one-shot and "current awareness" searches, and the files now stretch far beyond space technology into engineering, chemistry, medicine and software.

Of course, Mr. Ferwalt had *one* advantage there: his company is too young and small to have accumulated fat between the corporate ears.

*"Space Technology Utilization: The Challenge to Creative Imagination.", DESIGN NEWS, Mar. 17, 1967.

R. F. Stengel West Coast Editor

REPRINTED FROM THE MARCH 2, 1970 ISSUE OF DESIGN NEWS, A CAHNERS PUBLICATION

WESRAC NEWSLETTER

WESTERN RESEARCH APPLICATION CENTER
Graduate School of Business Administration/University of Southern California
809 West 34th Street/Los Angeles, California 90007 (213) 746-6132

With Research and Development costs now at a level of 27-28 billion dollars annually for the U.S.A. and with information spilling into print at a rate of 2000 pages a minute, the WESRAC Newsletter makes its first appearance. Its purpose is to help you understand and use the vast data collections now on tape at WESRAC on the campus of U.S.C., Los Angeles.

A NASA Funded Facility

WESRAC, embracing seven separate data banks, operated by skilled engineers and programmers and backed-up by a great university, services all the western states. WESRAC - as close as your phone - 746-6132.

Words You Should Know

	Number of Taped References in WESRAC Banks
ANALOG (Computer)	500
DIGITAL (Computer)	1514
CRYOGENIC	1854
TRANSDUCER	2497
SPECTROSCOPY	3548
CYBERNETICS	999

(See last page for definitions.)

Science at Work (Circa 1919) 52 Years B.S. (Before Smog)

"Most motorists do not consider automobiling as an exercise, providing there are no tires to change en route, and one frequently hears the opinion that the augmenting use of motor vehicles has materially reduced the opportunities for exercise that is so necessary to our physical well-being. A well-known writer on scientific subjects, Dr. Henry Smith Williams, takes exception to this general view and states that automobiling is beneficial and shows accruing benefits under three heads—physical, mental and volitional.

Not only Exercise

"He proceeds to point out that in addition to the exercise, the motorist has been in the open air, buffeting winds, inhaling ample quantities of oxygen to meet the increased needs of the accelerated currents of blood corpuscles; and that digestion and assimilation are thereby facilitated and the toxic products accumulated through former inaction progressively are in increased measures oxidized and eliminated.

Concludes That Whole Torso Benefits

"Dr. Smith supports his conclusion in part as follows: 'It is the muscles of the arms, together with those of the chest and abdomen, that preeminently and habitually suffer. When you drive a car 40 or 50 miles over average American roads, or a fraction of that distance in the city, you give your arms and torso a course of purposeful calisthenics that redounds directly to the benefit of your muscles, arteries and heart and indirectly, but no less significantly, to the benefit of your digestive apparatus and organs of elimination as well as the nervous system.'"

(Scientific American)

Vital Information for Filing Spec Sheets

If you are planning to make a bid on a forthcoming contract, WESRAC can be of great help in completing your SPEC sheets. For vital information or data on new material properties, characteristics, and methods of use, WESRAC's data banks will prove invaluable. New techniques for employing conventional materials, new systems for materials handling, and inventory systems are just a few of the 20,000 seperate subject matters here on tape at U.S.C. In fact, for any missing areas of information you might have in completing your SPEC sheets, you will find the answers you need quickly, easily and economically here at WESRAC. Try us and see - 809 W. 34th St., L. A. 90007.

WESRAC Success Story

While Apollo 11 was still on its way to the moon, a small Southern California businessman was on his way to a North Sea port in Europe, there to meet a consortium of deep-sea oil exploring firms. In his bag was a pilot sample of a new device designed to slash the costly randomness of drilling. The advanced technical data needed to create this device came from a computerized search by NASA's Western Research Application Center (WESRAC) - at the University of Southern California.

U.S.A. Research Expenditures for 1970

Projected costs of all Research and Development in the United States for 1970 are estimated to be 28 billion dollars - up from 27 billion dollars in 1969.

	1969 Figures
Federal Government (all bureaus)	$ 16.5 billion
Industry	$ 9.2 billion
Universities	$ 1.0 billion
Other non-profit organizations	$300.0 million

Despite government and industry predictions of cut-backs in budgets, Research and Development expenditures are expected to rise by about 1 billion dollars in 1970.

The largest increases appear in domestically concerned government bureaus such as the Department of Transportation, Health Education and Welfare, and Housing and Urban Development.

(Industrial Research - Jan. '70)

Some Uses of WESRAC Literature Searches

There are many circumstances under which a literature search provides valuable assistance. During the past few years literature searches have been found useful in:

1. Determining the active research areas of other companies.
2. Selecting profitable research projects and subjects for unsolicited proposals by discovering or verifying technological gaps.
3. Assessing the competition's strength by examining their achievements in the subject area of a proposal.
4. Proving to organizations issuing "RFP's" that your company is not duplicating research. (Request for proposal)
5. Determining which government agencies have been funding particular projects.
6. Checking feasibility or uniqueness of new ideas.
7. Obtaining background material when entering new fields.
8. Avoiding the proposal of a technical approach that has already been tried and has failed.
9. Fulfilling literature search requirements of contracts.
10. Obtaining information required in solving specific problems.
11. Strengthening the experience and facilities' portions of proposals.

Literature search results are not only applicable to engineering problems but to industrial relations, office and personnel management, marketing, quality control, production, public relations and financial activities as well. *There is hardly an R & D or study activity that cannot benefit from literature search support.*

Don't Invent the Wheel All Over Again

There is no need to start from scratch on every new project. Define your objective - identify the blank areas of precise information you must fill in, then contact WESRAC - arrange to have our data banks searched for the information you need. The cost is trifling - the help, clarifying and supportive. Chances of hitting valuable strikes on your computer search - more likely than not - try us and see.
Call 746-6132 - or write WESRAC, U.S.C., 809 W. 34th St., L.A., California 90007.

Keeping up with the Information Explosion

A Standard Interest Profile subscription will help keep you abreast or ahead of your competitors. There are 78 different subject titles (from Ablative materials to X-ray defraction). A monthly edition for each subject you want costs $80 a year.

Blame it all on the French

January 1870

"A trial of a road steamer with rubber tires has recently been made in Paris. The tractile power was sufficient to draw a heavy omnibus with 50 passengers. "Engineering" states that on the report of the French Government engineers, leave has been granted to the road steamer to ply over two routes, several miles in length and including some busy parts of Paris.

Handier Than Horses

"The engineers report it handier and more manageable than horses, and in no way dangerous to the public. The huge India-rubber tires save the machinery from jolting and the roads from ruts. The speed is that of a fast omnibus; the steamer went up the paved street beside the Trocadero, of which the gradients are 1 in 11 and even 1 in 9, without the least difficulty and came down again without any brake. In a wet grass field it was curious to observe how little the wheels sank into the saturated soil; in fact, the steamer obliterated, on retracting its circle, the deep ruts of the omnibus wheels. This circumstance has drawn the attention of artillery officers present at the experiment, suggesting to them an inquiry whether the system might not be advantageously applied to military transport in campaigning."

(Scientific American)

Sonic Booms

Scientific knowledge concerning sonic booms goes back less than 20 years. "When sonic booms were first experienced in the Dallas area, vandals were blamed. In the late 1940's, the Sheriff of Dallas County regularly raced off to find the vandals who were exploding dynamite before they could clear the blast scene. He never caught the vandals; but strangely enough, he did find broken tree limbs and burned spots in pastures where he believed the blasts had occurred."

The first scientific awareness of sonic booms was in 1953. "George Welch demonstrated the first super-sonic fighter to the press at Edwards Air Force Base. . . The boom broke window glass, light bulbs, and vacuum tubes in the radio gear. The radios were disabled, and they could not talk to Welch to stop him.

"He proceeded to give a diving, zooming, 'throttle-to-the-wall' demonstration. Sonic booms almost wrecked the place. The most knowledgeable people in aviation were there and were as surprised as anyone by the phenomena."

(TUSC News, S.E. State College, Durant, Oklahoma)

*NOTE: There are 500 different documents on sonic booms in WESRAC's data banks.

Individualized In-Depth Scanning

Did you know that you can obtain one full year's (12 mailings) subscription of WESRAC's Current Awareness Search for $302? This is a computer search individually tailored to your exact interest, scanning more than 6000 new entries per month, for the precise subject matter you need. Call WESRAC (213) 746-6132.

Sharp Insight and Prediction from 1919

"That we are on the verge of entering a nearly horse-less age does not seem apparent to the public because the change is being made gradually and we are so used to motor vehicles in practically all of our cities and towns. There are recent happenings, however, that indicate this in a positive manner. A prominent metropolitan architect has stated that in more than 80 per cent of the suburban homes he had designed so far this year, a garage for one or two cars was included in the specifications."

(Scientific American)

What is a "SIP" and Why You Need It

The WESRAC/SIP (Standard Information Profile) program is a current awareness literature search service designed to keep technical men aware of reports and articles on subjects of interest which have been released recently.

Many companies have purchased these "SIP" services for their most creative and competent professionals. It has been conclusively proved that the use of these information inputs becomes an important and inexpensive tool for increasing the effective utilization of the time and talents of these key personnel.

Sources and Literature Reviewed for "SIPs"

1. STAR, Scientific and Technical Aerospace Reports, covering NASA Contractor Reports, selected DOD and AEC Reports, selected conferences, and selected foreign literature
2. IAA, International Aerospace, announcements covering selected articles from over 800 technical journals, both domestic and foreign. Selections are made based on aerospace interests, but reports of interest to non-aerospace activities are often cited.
3. USGRDR, United States Government Research and Development Reports, is the report announcement journal of the U.S. Department of Commerce. All unclassified reports generated by the Department of Defense are announced in it, as well as a number of reports from other government agenices.
4. NSA, Nuclear Science Abstracts, covers reports issued by the Atomic Energy Commission and its contractors, also cited selections from world literature which may be applicable to non-AEC work.
5. AM & B, Aerospace Medicine and Biology, is a monthly publication which cites reports from world literature which may apply to problems in space and flight medicine.
6. EIP, Engineering Index, Plastics Section, this monthly publication covers technical articles and papers on polymers, and does not cover government reports.
7. EIEE, Engineering Index, Electronics/Electrical Engineering Section, is a monthly compilation of reports dealing with all phases of electronics and electrical engineering. There is no publication, and abstracts of these reports are available only from WESRAC or Engineering Index.
8. Open Literature. Non-governmental literature is surveyed on a limited basis for a few profiles in the management-related area.

Excerpt from SIP Index of Topics

Packaging (circuit design), SIP-34, SIP-134
Packaging films and adhesives, SIP-179
Paint, SIP-II, SIP-115
Pattern recognition, SIP-30
Petrophysics, SIP-73
Personnel management, SIP-41
PERT, SIP-56
Photographic film, SIP-29
Photography, SIP-29, SIP-70
Photomapping, SIP-29
Physical properties of ceramics, SIP-47
Physical properties of metals, SIP-04, SIP-09
Pitting (corrosion), SIP-11
Plastic materials, SIP-19, SIP-20
Plastic deformation in metals, SIP-09
Plating, SIP-11
Polyvinyl chloride (PVC), SIP-178
Polymer chemistry, SIP-20

Sample of Page of Abstracts - (SIP 115)

69-12 B21-91191

Air gun cuts printing rejects; Anon; Plastics World v 27 n 7 July 1969 p 34-5; Development of techniques which use hand-sized gun that simultaneously blows away dust and neutralizes static electricity of plastics containers prepared for painting and printing decoration; gun barrels contain nuclear source which ionize air streams and has life of one year; advantages of techniques developed and cost savings.

69-12 B22-93701

Surface preparation of steel for adhesive bonding and organic coatings; H.N.VAZIRANI (Bell Telephone Labs, Inc. Murray Hill, NJ); J of Adhesion v 1 July 1969 p 222-32; New process for surface treatment of steel; joints made with this new treatment show superior durability characteristics, as determined by length of time to failure when joints are subjected to different levels of static stress and conditioned at moderately elevated temperature and high relative humidity; vinyl polymer coated panels show superior resistance to salt spray and humidity; results of electron diffraction and scanning electron microscope studies.

69-12 B24-88103

Treatise on adhesion and adhesives, v 2. Materials; R.L. PATRICK ed; Marcel Dekker, New York, 1969, 554 p; Eleven chapters by 13 contributors evaluate materials and systems with theoretical concepts tied together by in-depth probing of material areas; topics include—epoxide, thermosetting, thermoplastic, elastomeric and pressure-sensitive adhesives; fiber adhesion; soldering, brazing and welding; glass resin adhesion in filament-wound structures; high temperature adhesion; and preparation of ultraclean substrate surfaces.

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SPACECRAFT		
LENGTH	12 feet	12 feet
WIDTH	13 feet	13 feet
WEIGHT	12,230 pounds	12,392 pounds
LAUNCH DATE	December 11	December 22
LAUNCH SITE	near Cape Kennedy	Cape Kennedy
CREW	three men	three men
TOP SPEED	25,000 mph	24,200 mph
LUNAR ORBIT	69 miles	25 miles
SPLASHDOWN	Pacific Ocean	Pacific Ocean

(Honeywell News Library)

Word Definitions You Should Know (See pg. 1)

1. ANALOG (Computer) - produces a graphic display of problem solution such as a sinewave on an oscilliscope.
2. DIGITAL (Computer) - a computer using coded numbers, usually in a binary system.
3. CRYOGENIC - pertaining to extremely low temperatures.
4. TRANSDUCER - semi-conductor which transmits power, or energy from one source to another.
5. SPECTROSCOPY - analysis of substance, or bodies through studies of their spectra - or those series of bands defracted and arranged in the order of their prespective wave lengths.
6. CYBERNETICS - the study of methods of control and communication which are common to living organisms and machines.

APPENDIX B

1. Example of promotion letter, February 12, 1970

WESTERN RESEARCH APPLICATION CENTER
GRADUATE SCHOOL OF BUSINESS ADMINISTRATION
UNIVERSITY OF SOUTHERN CALIFORNIA

FEBRUARY 9, 1970

MR. A. M. HIRSH, JR.
INTERNATIONAL PIPE & CERAMICS CORP.
2901 LOS FELIZ BLVD.
LOS ANGELES, CALIF. 90039

SUBJECT - HOW TO SURVIVE THE INFORMATION EXPLOSION

INFORMATION - IMPORTANT NEW TECHNICAL KNOWLEDGE VITAL TO YOUR FIRM - IS SPILLING INTO PRINT AT AN ESTIMATED RATE OF 2000 PAGES A MINUTE. CONVENTIONAL METHODS OF CULLING THROUGH THIS ENDLESS MASS FOR WHAT YOU NEED ARE NO LONGER PRACTICAL. NOW THERE IS A WAY WHICH PERMITS YOU TO SELECT AND USE WHAT YOU NEED FROM THIS AVALANCHE OF NEW TECHNOLOGY. WESRAC, A NASA SUPPORTED NON-PROFIT FACILITY IN THE BUSINESS SCHOOL OF THE UNIVERSITY OF SOUTHERN CALIFORNIA, IS COMPUTERIZING THIS DELUGE OF NEW KNOWLEDGE, COMPRISING SEVEN DIFFERENT DATA BANKS TOTALLING MORE THAN 1,750,000 DOCUMENTS WITH 50,000 NEW ITEMS ADDED MONTHLY.

THESE TAPED COLLECTIONS REPRESENT RESEARCH COSTING UPWARD OF 40 BILLION DOLLARS. WE HAVE THEM HERE AT WESRAC, AND THEY CAN BE SCANNED DAILY BY COMPUTERS TO GIVE INFORMATION PERTINENT TO YOU, INSTANTLY. WESRAC WILL ALSO KEEP YOU A STEP AHEAD IN YOUR FIELD BY SYSTEMATICALLY CATALOGUING AND TAPING CITATIONS FROM 20,000 DOMESTIC AND FOREIGN JOURNALS AND PERIODICALS.

YOU NEED A COMPUTER SEARCH AND RETRIEVAL SERVICE TO KEEP ABREAST OF THE FLOOD OF CURRENT DATA. WESRAC IS THE BEST FOR YOU, THE MOST CONVENIENT, ECONOMICAL AND EFFECTIVE. WE ARE WILLING TO PROVE IT BY OFFERING YOU A SINGLE SEARCH, SUSPENDING THE USUAL MEMBERSHIP FEE. OR, TEST US ON KEEPING YOU UP-TO-DATE EACH MONTH IN YOUR FIELD.

WHY NOT GET IN TOUCH WITH ME FOR DETAILS ON HOW OUR VAST DATA BANKS, SKILLED ENGINEERS AND PROGRAMMERS, BACKED BY THE TALENT OF A GREAT UNIVERSITY, CAN HELP YOU. HELP YOU NOT ONLY SURVIVE THE INFORMATION EXPLOSION, BUT PROFIT BY IT. THE ENCLOSURES DESCRIBE THE SERVICES AND COSTS.

A. KENDELL OULIE
DIRECTOR

UNIVERSITY OF SOUTHERN CALIFORNIA / 809 WEST 34TH STREET
LOS ANGELES, CALIFORNIA 90007 213 746-6132

APPENDIX C

Statistics and forms requested by NASA-TUD for inclusion in quarterly reports. Periods covered are shown on each page, but do not go beyond April 30, 1970.

1. Issued abstracts relative to Microfiche or hard copy documents.
2. Hard copy issued by Star and IAA category (to clients)
3. Microfiche issued by Star and IAA category.
4. R.D.C. Marketing/Service contact (with clients).
5. R.D.C. Marketing Approaches (non-clients)
6. R.D.C. Large and Small Business Clients (cumulative).
7. R.D.C. Annual Member Clients by S.I.C. code (cumulative).

APPENDIX C1

ISSUED ABSTRACTS RELATIVE TO MICROFICHE OR HARD COPY DOCUMENTS

(By contract quarters beginning 1 Feb. 1969)

	ABSTRACTS and CITATIONS	DOCUMENTS
1st Q 1969	2,703	538
2nd Q 1969	2,840	327
3rd Q 1969	3,313	574
4th Q 1969	2,260	445
Total 1969	11,116	1,884
1st Q 1970	2,225	427
2nd Q 1970		
3rd Q 1970		
4th Q 1970		
Total 1970		

APPENDIX C2

HARD COPY ISSUED BY STAR AND IAA CATEGORY

(By contract quarters beginning 1 Feb. 1969)

Category	1st Q 1969	2nd Q 1969	3rd Q 1969	4th Q 1969	Total 1969	1st Q 1970	2nd Q 1970	3rd Q 1970	4th Q 1970	Total 1970
1	5	6	5	3	19	8				
2	4	3	15	19	41	21				
3	9	4	8	2	23	3				
4	7	3	8	10	28	18				
5	6	6	9	5	26	19				
6	10	12	10	10	42	17				
7	40	22	16	4	82	13				
8	39	17	31	10	97	11				
9	91	24	39	24	178	52				
10	16	15	7	4	42	2				
11	6	4	16	1	27	8				
12	3	0	8	1	12	5				
13	3	11	14	21	49	31				
14	32	22	17	50	121	47				
15	49	26	49	31	155	38				
16	12	0	15	3	30	5				
17	25	12	47	25	109	19				
18	15	17	25	19	76	17				
19	10	4	7	7	28	7				
20	7	5	11	7	30	10				
21	7	6	7	9	29	1				
22	0	0	7	3	10	2				
23	3	1	3	1	8	11				
24	1	4	5	2	12	2				
25	2	3	6	2	13	3				
26	35	3	1	12	51	14				
27	4	1	1	0	6	2				
28	3	3	6	1	13	8				
29	1	0	3	0	4	2				
30	3	4	9	11	27	7				
31	4	5	22	2	33	8				
32	34	17	61	18	130	20				
33	3	1	9	4	17	5				
34	17	10	15	6	48	3				
Other	32	56	36	22	136	64				
Total	538	327	548	349	1762	396				

APPENDIX C3

MICROFICHE ISSUED BY STAR AND IAA CATEGORY

(Byycontract quarters beginning 1 Feb. 1969)

Category	1st Q 1969	2nd Q 1969	3rd Q 1969	4th Q 1969	Total 1969	1st Q 1970	2nd Q 1970	3rd Q 1970	4th Q 1970	Total 1970
1			8	3	11	0				
2			4	32	36	1				
3			1	1	2	0				
4	NONE		0	3	3	1				
5			0	0	0	1				
6	ISSUED		0	5	5	2				
7			1	0	1	1				
8			0	3	3	0				
9			0	1	1	0				
10			0	0	0	0				
11			0	2	2	0				
12	NONE		2	2	4	0				
13			0	3	3	4				
14			0	19	19	6				
15	ISSUED		0	1	1	4				
16			0	0	0	0				
17			0	2	2	0				
18			0	2	2	0				
19			0	0	0	0				
20			1	2	3	3				
21			0	0	0	0				
22			0	1	1	0				
23	NONE		0	1	1	0				
24			0	1	1	0				
25			0	1	1	0				
26	ISSUED		0	0	0	0				
27			0	0	0	0				
28			0	3	3	0				
29			0	0	0	0				
30			0	0	0	0				
31			1	0	1	1				
32			8	6	14	2				
33			0	1	1	3				
34			0	1	1	1				
Other			0	0	0	1				
Total			26	96	122	31				

APPENDIX C4

RDC MARKETING/SERVICE CONTACT
(With Clients)

(By contract quarters beginning 1 Feb. 1969)

	TECHNICAL (Applications Engineers)		MARKETING	
Type Contact	Tele-phone	Visit	Tele-phone	Visit
1st Q 1969	91	41	86	41
2nd Q 1969	85	32	73	65
3rd Q 1969	90	40	83	63
4th Q 1969	81	30	68	37
Total 1969	347	143	310	206
1st Q 1970	120	40	46	27
2nd Q 1970				
3rd Q 1970				
4th Q 1970				
Total 1970				

APPENDIX C5

RDC MARKETING APPROACHES
(Non-Clients)

(By contract quarters beginning 1 Feb. 1969)

TYPE	Direct Mail	Tele-phone Contact	Personal Presen-tations	Group Presen-tations	Ads (Paid)	Ads (Not Paid)	Journal/ Magazine Articles
1st Q 1969	0	600	220	5	2	**	1
2nd Q 1969	0	713	380	0	1	**	2
3rd Q 1969	1,461	442	337	2	2	**	8
4th Q 1969	7,300	226	178	12	0	**	6
Total 1969	8,761	1,981	1,115	19	5	**	17
1st Q 1970	25,824	319	89	5	0	**	2
2nd Q 1970							
3rd Q 1970							
4th Q 1970							
Total 1970							

APPENDIX C6

RDC LARGE AND SMALL BUSINESS CLIENTS
(Cumulative)

(By contract quarters beginning 1 Feb. 1969)

Small = under 500 employees

CLIENT SIZE	LARGE	SMALL
1st Q 1969	22	31
2nd Q 1969	24	33
3rd Q 1969	23	33
4th Q 1969	19	34
1st Q 1970	15	24
2nd Q 1970		
3rd Q 1970		
4th Q 1970		

RDC ANNUAL MEMBER CLIENTS BY SIC CODE
(Cumulative)

(By contract quarters beginning 1 Feb. 1969)

(Continued on next page)

SIC CODE #	1st Q 1969	2nd Q 1969	3rd Q 1969	4th Q 1969	1st Q 1970	2nd Q 1970	3rd Q 1970	4th Q 1970
1551	0	0	0	0	0			
1921	1	1	1	1	1			
1999	1	1	1	1	1			
2641	0	0	0	0	0			
2811	1	0	0	0	0			
2812	1	1	1	1	0			
2816	1	1	1	1	1			
2819	1	1	1	0	0			
2992	1	1	0	0	0			
3011	1	1	1	1	1			
3079	2	0	0	0	0			
3241	1	1	1	1	1			
3272	1	1	1	1	0			
3334	0	1	1	1	1			
3341	1	1	1	1	0			
3349	0	1	0	0	0			
3356	1	1	1	1	0			
3433	1	1	1	1	0			
3449	1	0	1	1	0			
3452	0	0	0	0	0			
3494	1	1	1	1	2			
3499	0	0	0	0	1			
3500	1	1	1	0	0			
3533	0	0	0	0	0			
3553	1	0	0	0	0			
3559	0	1	1	1	2			
3571	2	3	3	2	2			
3599	0	0	0	1	0			
3610	0	0	0	0	0			
3611	1	2	2	2	2			
3621	0	0	0	0	0			

RDC ANNUAL MEMBER CLIENTS BY SIC CODE
(Cumulative)

(By contract quarters beginning 1 Feb. 1969)

SIC CODE #	1st Q 1969	2nd Q 1969	3rd Q 1969	4th Q 1969	1st Q 1970	2nd Q 1970	3rd Q 1970	4th Q 1970
3639	0	0	0	0	0			
3641	1	1	0	0	0			
3643	1	1	0	0	0			
3651	1	1	1	0	0			
3661	1	1	1	1	0			
3662	4	6	6	6	5			
3679	4	4	3	3	2			
3690	1	0	0	0	0			
3694	0	0	0	0	0			
3699	1	1	2	1	1			
3714	0	0	0	1	1			
3720	1	1	1	1	1			
3721	1	1	1	1	1			
3722	1	1	1	1	1			
3729	2	2	2	2	2			
3811	2	2	3	3	1			
3821	1	1	1	1	0			
3831	0	2	2	2	2			
3841	1	1	1	1	0			
3861	0	0	0	0	0			
3993	0	0	0	0	0			
4924	1	1	1	0	0			
5912	0	0	1	1	1			
7391	2	2	2	2	0			
7392	0	0	0	0	0			
7821	1	1	1	1	1			
8911	1	1	2	2	2			
8921	2	2	2	3	2			
9100	1	1	1	1	1			
Mil.	0	0	0	0	0			
Bio.Med.	0	0	0	0	0			
Total	53	57	56	53	39			

APPENDIX D

Abstract of WESRAC Quarterly Report

Period 1 February - 30 April, 1970

University of Southern California
Western Research Application Center

Quarterly Report for Period 1 February - 30 April, 1970
1 May 1970 - PP. INCL APPENDICES
Contract No. NASW-1869

Western Research Application Center (WESRAC) operations for the first quarter of 1970 are presented. Physical plant, equipment and personnel, marketing efforts, and operations are discussed. Data base broadened to include access to Educational Resources Information Center bank of Department of HEW. Included are quarterly activity statistics.